



THE BENEFITS OF AN INTEGRATED APPROACH
TO TACKLING DIABETES AND CLIMATE CHANGE

WIN-WIN

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This report is a summarised version of the Diabetes and Climate Change Report produced by the International Diabetes Federation (IDF) in June 2012 with support from Bupa.

To view the full report go to idf.org/diabetes-and-climate-change

FOREWORDS



Bupa recently announced Well World, our commitment to keeping people well and supporting a healthy planet. Through this commitment, we will fulfil our purpose – longer, healthier, happier lives.

But to have healthy people, we must also have a healthy planet. This report looks at the connections between health and the environment – but uniquely through the lens of diabetes and climate change.

These are global threats and the opportunities to address them are deeply connected and need action at local and national level. The actions that we take as individuals and the laws that nations pass, can both reduce our risk of diabetes and our impact on the planet. By moving more, eating healthily, improving our cities, and focusing healthcare on prevention, we can make a huge difference to the health of future generations – as well as on the planet they will rely on.

We are proud to have partnered with the world's pre-eminent authority on diabetes, the International Diabetes Federation, to produce this report. By speaking and acting together we can achieve more in encouraging a joined-up approach to tackling the twin challenges of diabetes and climate change.

Stuart Fletcher

Chief Executive
Bupa Group



The global diabetes epidemic is one of the most urgent health threats of the 21st century. This disease is growing, costly and deadly and has a direct impact on global development and on the lives of people everywhere.

The International Diabetes Federation (IDF) is proud to work with Bupa to produce a range of pioneering reports to steer the global discussion on diabetes policy and practice. This is a summary of our first report, Diabetes and Climate Change Report, launched at the United Nations Conference on Sustainable Development (Rio+20). It examines the connections between two global threats - diabetes and climate change.

As our planet suffers the effects of global warming, people with diabetes have become more vulnerable to devastating health complications. These complications are particularly felt in regions where health systems are fragile and unable to cope with the rising burden of diabetes and Non-Communicable Diseases (NCDs).

Common factors, including changing population demographics, rapid urbanisation and the dysfunctional global food system, are simultaneously driving the threat of diabetes and climate change. But where there is threat, we find opportunity. The connections between these two global challenges provides us with an opportunity to work together to mitigate both climate change and diabetes.

We must build cities which provide healthy and sustainable choices. We must create a global food system which delivers food security to the poorest people but also protects our planet and curbs the relentless rise of obesity. And all of us must unite behind a new development agenda, rooted in fairness, sustainability, good health and social justice.

Ann Keeling

Chief Executive Officer
International Diabetes Federation



1. SUMMARY

Changes in how and where we live, the growth of cities, ageing populations, consumption of natural resources, and production of food and goods are creating new challenges to human development and economic growth.

Two urgent challenges are the global diabetes epidemic and climate change. Both are rapidly accelerating and unless action is taken will adversely affect the wellbeing of future generations.

The costs of diabetes and climate change are staggering:

- diabetes causes 4.6 million deaths and costs over £300 billion (US\$465 billion) globally every year in direct healthcare spending;¹ and
- climate change is already estimated to cost between 5% and 20% of global gross domestic product, and greenhouse gas emission is set to increase by 52%.²

However, despite growing recognition of the need to act on both type 2 diabetes and climate change, there has been little understanding of the connections between them, or the benefits of joint approaches to addressing them.³ Policies to combat climate change and type 2 diabetes have so far been developed separately with little consideration for the impact they have on each other. For example, the United Nations Summit on Non-Communicable Diseases (NCDs) acknowledged the “challenge” of climate change, but contained no commitment to integrating NCD prevention with climate change mitigation, while health is barely mentioned in the United Nations Framework Convention on Climate Change decisions.⁴

This report outlines the connections between climate change and diabetes and highlights the benefits of combating them together in an integrated approach. By doing so, this report contributes to the global discussions and renewed attention on sustainable development, reinforcing the connections between people’s health and planetary health.

As a result, we are calling on the United Nations (UN), governments, companies and other organisations to join together to campaign for, or implement, the following actions to combat type 2 diabetes and climate change:

- **Create transport policies** designed to reduce carbon emissions, increase active travel (distances walked and cycled) and prioritise pedestrians and cyclists – to increase physical activity and address type 2 diabetes.
- **Introduce urban design** which integrates ‘active design’ into streets and workplaces to increase physical activity, reduce carbon emissions and result in environmental benefits.
- **Ensure the global food system** delivers sustainable diets, which increase fruit and vegetable consumption and slow the rapid growth in the consumption of red meat and dairy products to reduce the risk of diabetes and reduce carbon emissions.
- **Strengthen integrated approaches to prevention and management of NCDs**, to reduce the complications from poor diabetes care and the need for treatment and medication, and the extra human, environmental and financial impact these create.

DIABETES CAUSES 4.6 MILLION
DEATHS A YEAR

¹ International Diabetes Federation, Diabetes Atlas: 5th Edition, 2011¹

² OECD, Environmental Outlook to 2050, 2008.

³ Andy Haines and Carlos Dora, ‘How the Low Carbon Economy Can Improve Health’, BMJ 2012;344:e1018, 19th March 2012.

⁴ A/66/L.1 Political declaration of the High-level Meeting of the General Assembly on the Prevention and Control of Non-communicable Diseases. Sept 2011; United Nations, United Nations Framework Convention on Climate Change, 1992; United Nations, Kyoto Protocol to the United Nations Framework Convention on Climate Change, 1998.



2. TWO GLOBAL HEALTH AND DEVELOPMENT CHALLENGES

DIABETES: A GROWING, DEADLY AND COSTLY CHALLENGE

Diabetes is a global epidemic reaching crisis levels. Today there are 366 million people with diabetes worldwide, a figure which is predicted to rise to 552 million by 2030. Over four million people die from diabetes every year, and it is among the top 10 causes of disability worldwide.

In addition, diabetes most severely affects low and middle-income countries (LMICs). Four-out-of-five people with diabetes now live in LMICs and over the next 20 years the greatest increase in cases of diabetes will be in Africa, the Middle East and South-East Asia.

The World Economic Forum (WEF) has consistently recognised diabetes as one of the top threats to the global economy. Diabetes results in high healthcare costs, loss of labour productivity and decreased rates of economic growth. The International Diabetes Federation (IDF) estimates that diabetes is the cause of £300 billion (US\$465 billion) of global healthcare spending in 2011 – equivalent to 11% of total global healthcare expenditure. While the high costs of caring for someone with diabetes can pitch vulnerable families into cycles of catastrophic costs, poverty and illness.

There are three major forms of diabetes: type 1, type 2 and gestational diabetes (GDM.) This report concerns type 2 diabetes, which is a combination of insulin resistance and insulin deficiency, and accounts for up to 90% of all diabetes cases globally.

CLIMATE CHANGE: AN ENVIRONMENTAL, ECONOMIC AND HUMAN CHALLENGE

Climate change is a major challenge to the sustainability of the planet. Industrialisation has led to widespread increases in the use of fossil fuels and the release of greenhouse gases (mostly carbon dioxide) into the atmosphere.⁵ Greenhouse gas (GHG) emissions are expected to grow by 52% by 2050.

The environmental impact of climate change includes increasing ocean temperatures and rising sea levels; changes in rainfall patterns creating severe droughts and floods; higher temperatures leading to extinction of many habitats and species; and the frequency and increased intensity of extreme events such as hurricanes, floods and droughts.⁶

The health impacts of climate change are well established and include:

- increased illness and deaths from non-communicable diseases (NCDs) – cancer, diabetes, chronic respiratory and cardiovascular disease;
- the spread of many infectious diseases; and
- death, injuries and the outbreak of diseases, diarrhoea, and malnutrition, caused by extreme events such as droughts and floods.⁷

Expected to cost between 5% and 20% of global Gross Domestic Product (GDP) every year, climate change has the greatest effect on those with the least resources.⁸ The world's poorest one billion people account for just 3% of greenhouse gas emissions but experience the most devastating impacts of climate change.⁹ Some 70% of natural disasters occurred in the Pacific region, Asia, the Middle East and Africa between 2004 and 2006.¹⁰ Climatic change and extremes lead to major resource scarcity and the loss of agricultural land and water supplies.¹¹

Diabetes and climate change are global challenges, but the response needed to tackle them will differ according to the needs of individual countries. For example, low-income countries require urgent financial and technical support in order to adapt to climate change and the burden of diabetes and NCDs. Investment in the health and food systems and urban planning of low-income countries is an opportunity to promote sustainable development.

5 Intergovernmental Panel on Climate Change. Climate change 2007. The physical science basis. Solomon S, Qin D, Manning M, et al, eds. Cambridge University Press, 2007.

6 United Nations Framework Convention on Climate Change, Climate Change: Impacts, Vulnerabilities and Adaptation in Developing Countries, 2007, UNFCCC.

7 World Health Organisation, *Protecting Health from Climate Change* (2008); Jonathan A Patz and R Sari Kovats, 'Hotspots in Climate Change and Human Health', *British Medical Journal*, Vol 325 (November 2002).

8 Stern Review on the Economics of Climate Change, 2007.

9 Commission on Social Determinants of Health. Closing the gap in a generation: health equity through action on the social determinants of health. Final Report of the Commission on Social Determinants of Health. Geneva: World Health Organization, 2008.

10 *Lancet* and UCL Institute for Global Health Commissions, 'Managing the Health Effects of Climate Change', Vol 373 (May 2009).

11 Nicholas Stern, 'Managing Climate Change and Overcoming Poverty: Facing the Realities and Building a Global Agreement on Poverty', Policy Paper, Centre for Climate Change Economics and Policy, Grantham Research Institute on Climate Change and the Environment, 2009.

3. CONNECTIONS BETWEEN DIABETES AND CLIMATE CHANGE

Type 2 diabetes and climate change are directly and indirectly connected. Direct connections are the adverse impacts that type 2 diabetes and climate change have upon each other. The indirect connections are the common global factors fuelling both challenges. These connections highlight the need for a joint approach to combating them.

DIRECT CONNECTIONS

There is increasing evidence to show that diabetes and climate change are directly linked. This includes:

- the impact of heatwaves and extreme weather events on the health of people with diabetes;
- the impact of climate change on food availability and the risk of developing type 2 diabetes; and
- the impact of rising obesity levels and complications of diabetes on GHG emissions.

Adverse health outcomes and increased risk of diabetes

People with conditions such as diabetes are more vulnerable to adverse health impacts of climate change. In hotter temperatures, dehydration and heatstroke increase illness and deaths among people with diabetes. People with diabetes are more likely to suffer cardiovascular problems during heatwaves.¹²

Climate change increases extreme weather events which cause people to migrate, increase slum growth, and make resources scarcer. Rapid migration and urban slums increase the risk of diabetes and obesity.¹³

The increase of extreme weather threatens the delivery of care for vulnerable people with diabetes.¹⁴ For example, after Hurricane Katrina swept through the southern United States in 2005, over 200,000 people with chronic conditions such as diabetes had no access to care or essential medicines. These were mainly vulnerable and elderly people who were unable to leave the area.¹⁵

Small island states – at high risk of climate extremes – are disproportionately affected by diabetes, with rates of diabetes in adults reaching over 20% in Pacific Islands such as Kiribati, Samoa and Tuvalu. In many cases their

health systems are ill-equipped to cope with rising numbers of people with diabetes.

Food shortages and malnutrition

Climate change threatens agricultural production and the food supply through water scarcity and drought, and the destruction of crops by extreme weather.¹⁶ As rising temperatures affect crops, it is estimated that half the world will experience food shortages by the end of the 21st century.¹⁷

Both over-nutrition and under-nutrition increases an individual's risk of developing diabetes and related NCDs. Maternal under-nutrition increases the risk of a child developing obesity and type 2 diabetes in later life.¹⁸ Under-nutrition in pregnancy is widespread in LMICs and is expected to increase.

Climate change will make fresh food expensive and scarce as traditional supplies are disrupted, increasing malnutrition.¹⁹ Indigenous people, who depend on traditional lands, water, plants and animals for survival, may be forced to rely on imported and processed foods that have little nutritional value, increasing their risk of developing diabetes.²⁰ By raising rates of under-nutrition, food insecurity is likely to increase the risks of people developing type 2 diabetes and NCDs.

Diabetes, obesity and greenhouse gas emissions

The rising burden of type 2 diabetes and obesity, which is its principal cause, is directly contributing to climate change. An increasingly obese population increases GHG emissions from food production and car travel. A population in which 40% of people are obese requires 19% more food energy than a population with a normal BMI distribution.²¹

Failure to prevent and manage diabetes can lead to greater demands on health systems and increase their already-large carbon footprint. Diabetes-related complications, such as cardiovascular disease, stroke and kidney failure, cost lives and money. Hospital admissions from these complications are also energy-intensive and increase GHG emissions.²² In the UK, the National Health Service in England alone generates over 18 million tonnes of carbon dioxide emissions every year – which amounts to 25% of all public sector carbon dioxide emissions.²³

¹² Geneva: IFRC, 2008; Michael A McGeekin and Maria Mirabelli, 'Potential Impacts of Climate Variability and Change in Temperature-Related Morbidity', *Environmental Health Perspectives*, Vol 109 (May 2001); Harvard School of Public Health, Effects of Temperature Patterns on Long Term Mortality, accessed on line at <http://www.hsph.harvard.edu/news/press-releases/2012-releases/summer-temperature-variability-mortality-risk.html>; Semenze et al., 'Excess hospital admissions during the July 1995 Heat Wave in Chicago' *Am J Prev Med*, 16 (4) (May 1999).

¹³ Misra A., 'High Prevalence of Diabetes, Obesity and Dyslipidaemia in Urban Slum Population in Northern India', *Int J ObesRelatMetabDisord*, 25, 11 (November 2001).

¹⁴ Intergovernmental Panel on Climate Change, Fourth Assessment Report – Human Health (2007); International Institute for Environment and Development, *Health: Mainstreaming Environment and Climate Change* (July 2011).

¹⁵ White House, The Federal Response to Hurricane Katrina – Lessons Learned (2006).

¹⁶ Anthony J McMichael, 'Climate Change and Health: Priorities and Perspectives', *Centre on Global Health Security, Chatham House* (December 2011); Brighter Green, Policy Brief – 'Climate, Food Security and Growth: Ethiopia's Complex Relationship with Livestock'.

¹⁷ *Lancet* and UCL Institute for Global Health Commissions, 'Managing the Health Effects of Climate Change', Vol 373 (May 2009).

¹⁸ Fall CHD. Developmental Origins of Cardiovascular Disease, Type 2 Diabetes and Obesity in Humans. In: E.M.Wintour-Coghlan&J.A.Owens, editor. *Early Life Origins of Health and Disease*. 573 ed. London: Springer Science+Business Media; 2006. 8-28.

¹⁹ Intergovernmental Panel on Climate Change, Fourth Assessment Report – Human Health (2007)

²⁰ Report of the 2007 Annual Meeting of the Interagency Support Group on Indigenous Peoples UNEP/CBD/IASG 19 September 2007, para 13, p3, to appear as a document of the seventh session of the UNPFII.

²¹ Report of the 2007 Annual Meeting of the Interagency Support Group on Indigenous Peoples UNEP/CBD/IASG 19 September 2007, para 13, p3, to appear as a document of the seventh session of the UNPFII.

²² P Edwards and I Roberts, 'Population Adisposity and Climate Change', *International Journal of Epidemiology* 2009, 38 (4) 1137:1140.

²³ Imogen Tennison, 'Indicative Carbon Emissions per Unit of Healthcare Activity', NHS sustainable Development Unit and Eastern Region Public Health Observatory, April 2010.

²⁴ NHS Sustainable Development Unit, NHS Carbon Footprinting Report, September 2008.

INDIRECT CONNECTIONS

There are a number of common global factors that link type 2 diabetes and climate change. These indirect connections can be highlighted in three ways:

- Rapid urbanisation – diabetes – climate change.
- Changing population demographics – diabetes – climate change.
- Global food system – diabetes – climate change.

Links between rapid urbanisation, diabetes and climate change

The number of people living in cities is set to rise to five billion worldwide by 2030. This growth will largely be unplanned. People who move to cities increase their chances of developing diabetes through greater exposure to risk factors including greater use of motor transport, too little physical activity and unhealthy diets, as well as increasing GHG emissions.²⁴

Sedentary lifestyles – high motor transport use, inactive occupations and too little physical activity – are increasing worldwide. Physical inactivity is one of the

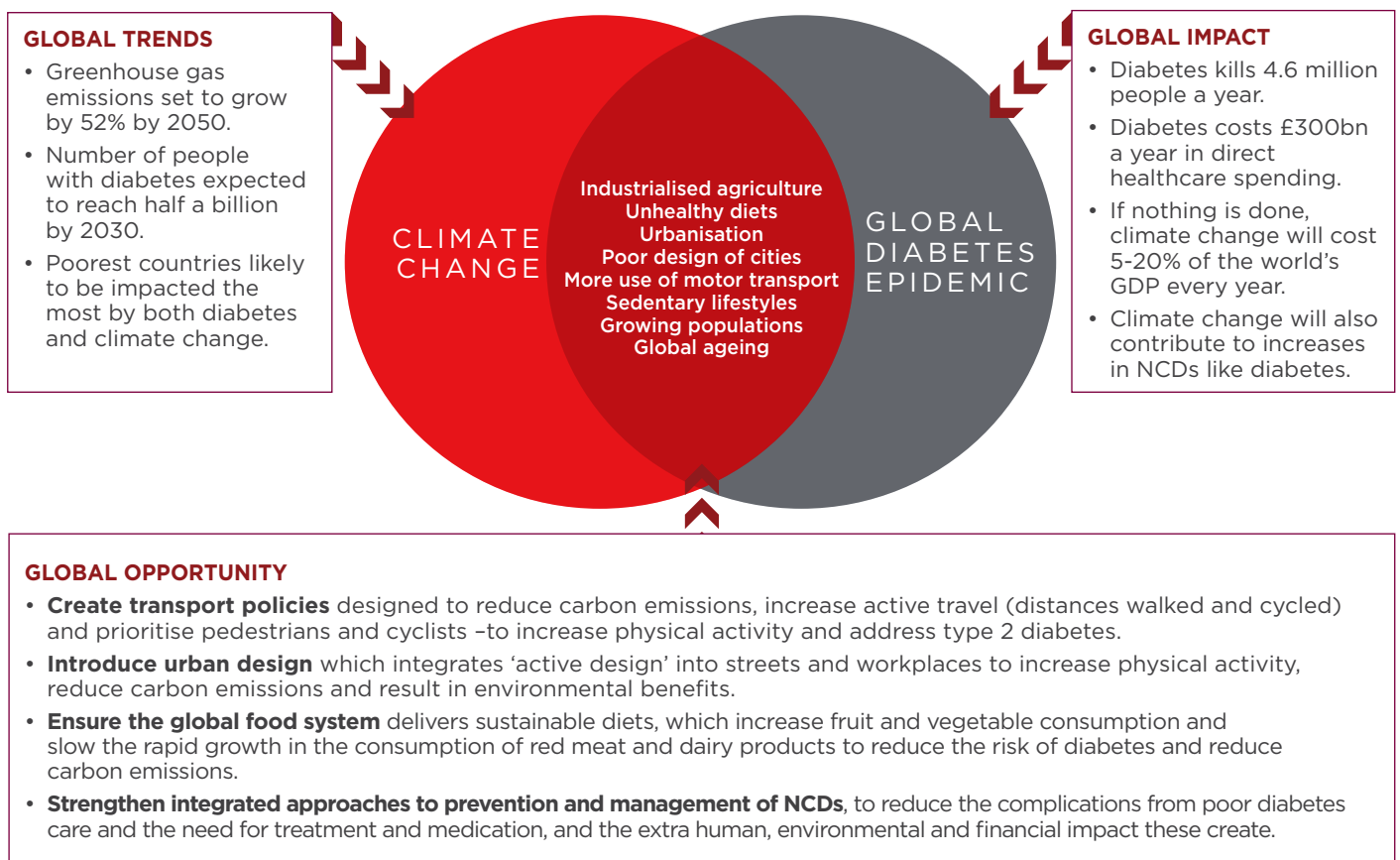
four leading NCD risk factors and accounts for nearly a third of cases of type 2 diabetes.²⁵ The UK Intergovernmental Panel on Climate Change states that 23% of global GHG emissions are from transport – with road traffic constituting 75% of these emissions.²⁶ These links require a new urban planning model which provides healthy and ‘green’ transport options, such as safe walking and cycling routes.

Links between population change, diabetes and climate change

The world’s population is predicted to grow from seven billion in 2011 to nine billion by 2050. Such major population growth increases production and industrialisation, both of which drive diabetes and climate change.²⁷ Increasing global population will have major implications for the world’s resources, energy consumption and GHG emissions.²⁸

Young populations in developing countries will increase demand for goods and resources. At the same time, the global population is ageing – the number of people aged over 60 will increase from 605 million to two billion by 2050.²⁹ The prevalence of type 2 diabetes and other NCDs increases with age, bringing associated implications for healthcare and energy consumption.³⁰

HOW DIABETES AND CLIMATE CHANGE ARE CONNECTED



²⁴ World Health Organisation, *Global Status Report on Noncommunicable Diseases 2010*, Geneva, 2011.

²⁵ World Health Organisation: *First Global Ministerial Conference on Healthy Lifestyles and NCD Control – Policy Brief: Physical Activity, Sports and Transport* (April 2011).

²⁶ Roger L Mackett and Belinda Brown, *Transport, Physical Activity and Health: Present knowledge and the way ahead*, Centre for Transport Studies, London, December 2011; Kahn Ribeiro, S., S. Kobayashi, M. Beuthe, J. Gasca, D. Greene, D. S. Lee, Y. Muromachi, P. J. Newton, S. Plotkin, D. Sperling, R. Wit, P. J. Zhou, 2007: *Transport and its infrastructure*. In *Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [B. Metz, O.R. Davidson, P.R. Bosch, R. Dave, L.A. Meyer (eds)], Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

²⁷ UK Government for Science and Foresight, *The Future of Food and Farming: Challenges and Choices for Global Sustainability* (2011); John McKinlay and Lisa Marceau, ‘US Public Health and the 21st Century’, *The Lancet*, 356, August 2000.

²⁸ The Royal Society, *Population and Planet*, April 2012.

²⁹ United Nations Department for Economic and Social Affairs, *World Population Prospects: the 2008 Revision, Highlights*, 2009.

³⁰ A/66/L.1 Political declaration of the High-level Meeting of the General Assembly on the Prevention and Control of Non-communicable Diseases. Sept 2011; The Royal Society, *People and Planet*, April 2012.

Links between the global food system, diabetes, and climate change

The 21st century global food system (GFS) has increased agricultural output, access to common foods and choice, but at a major cost to human and planetary health.³¹ The GFS does not encourage sustainable agriculture or healthy diets. Current systems of producing, processing, distributing and consuming food are increasing GHG emissions and risk of diabetes.

The agricultural system produces up to a third of GHG emissions worldwide – with food production responsible for 10-12% of global emissions. Livestock production causes the majority of agricultural emissions and poses a major threat to the planet.³² GHGs are emitted at almost every stage of livestock production and the ‘carbon cost’ of meat is seven times that of vegetables.³³

Animal products are nutritionally important, but are also major sources of saturated fat and leading components of unhealthy diets. Diets high in saturated fats from animal products – particularly red meat and processed meats – are associated with increased risk of obesity and type 2 diabetes.³⁴ Decreasing the production and consumption of animal produce will reduce both carbon emissions and the risk of obesity and diabetes.

Advances in food production have increased availability and affordability of processed and energy-dense food.³⁵ Processed foods increase the risk of diabetes and obesity in comparison to fruit, vegetable and cereal products.³⁶

Consumption of processed food is associated with high levels of obesity, diabetes and NCDs.³⁷ Globally, 1.46 billion adults are overweight, 502 million are obese and, it is predicted that, over 50% of adults will be obese by 2050.³⁸ Rising obesity in the US and UK is estimated to result in a further 6-8.5 million diabetes cases by 2030.³⁹

Carbon-intensive production, transport, storage and retailing methods are also required for processed and packaged foods. Urbanisation also increases the distance from ‘farm to fork’ and GHG emissions from transportation.⁴⁰ Demand for processed foods in urban areas has increased palm oil and sugar production in tropical countries, leading to harmful land clearing and deforestation practices.⁴¹



³¹ Chicago Council for Global Affairs, *Bringing Action to the Table: How Agriculture and Food can Play a Role in Preventing Chronic Disease* (2011).

³² Food and Agriculture Organisation, *Livestock's Long Shadow – Environmental Issues and Options*, FAO, 2006.

³³ Nick Hewitt, Lancaster University, <http://www.independent.co.uk/environment/climate-change/meat-trade-emissions-equal-to-half-of-all-britains-cars-6423173.html>

³⁴ Sharon Friel et al., Health and Climate Change 4 – Public Health benefits of Strategies to Reduce Greenhouse Gas Emissions: Food and Agriculture, *The Lancet*, (Vol 374, December 2009); World Health Organisation, *Global Status Report on Noncommunicable Diseases 2010*, Geneva, 2011; Food and Agriculture Organisation, *Livestock's Long Shadow – Environmental Issues and Options*, FAO, 2006; D. Aune & G. Ursin and M. B. Veierød, 'Meat consumption and the risk of type 2 diabetes: a systematic review and meta-analysis of cohort studies', *Diabetologia*, 52 (2009).

³⁵ R Labonte, KS Mohindra and R Lencucha, 'Framing International Trade and Chronic Disease', *Global Health*, 2011; 7 (1): 21.

³⁶ UK Government for Science and Foresight, *The Future of Food and Farming: Challenges and Choices for Global Sustainability* (2011).

³⁷ Food and Agriculture Organisation, *Livestock's Long Shadow – Environmental Issues and Options*, FAO, 2006; IlonaKickbusch on behalf of Health Promotion Switzerland, *White Paper: The Food System* (July 2010).

³⁸ Boyd A Swinburn, Gary Sacks, Kevin D Hall, Klim McPherson, Diane T Finegood, Marjory L Moodie and Steven L Gortmaker, 'The global obesity pandemic: shaped by global drivers and local environments' *The Lancet*, 378: 9793, 804 – 814 (August 2011).

³⁹ Y Claire Wang, Prof Klim McPherson, Tim Marsh, Steven L Gortmaker and Martin Brown, 'Health and economic burden of the projected obesity trends in the USA and the UK', *The Lancet*, 378: 9793, 815-825 (August 2011).

⁴⁰ Chicago Council for Global Affairs, *Bringing Action to the Table: How Agriculture and Food can Play a Role in Preventing Chronic Disease* (2011); IlonaKickbusch on behalf of Health Promotion Switzerland, *White Paper: The Food System* (July 2010).

⁴¹ Ruth S DeFries et al., 'Deforestation Driven by Urban Population Growth and Agricultural trade in the 21st Century', *Nature Geoscience*, 3, 178-181 (2010).

4. A 'WIN WIN' APPROACH TO COMBATING DIABETES AND CLIMATE CHANGE

Given the connections between type 2 diabetes and climate change, a joint policy approach provides a “win-win” opportunity to combat the risks of climate change and type 2 diabetes at the same time.

Reframing climate change as a public health concern makes environmental issues more understandable, significant, and relevant to individuals. There is evidence that people respond more positively to climate change policies with health benefits, than those without.⁴² Investing in joint-benefit strategies will have major health, economic and environmental pay-offs.

The strategies outlined below aim to transform high-carbon societies with high levels of obesity, to active-living low-carbon societies, building a green economy which integrates both health and environmental concerns.

URBAN PLANNING POLICIES

Well-planned urban environments can improve human and planetary health. Transport policy and urban design can promote and support healthy and sustainable choices in urban environments.

Transport policy

Encouraging more walking and cycling will reduce GHGs and increase physical activity, critical for diabetes prevention. It is estimated that physically-active individuals reduce their risk of developing type 2 diabetes by up to half.⁴³ In Delhi, more walking and cycling has been shown to reduce diabetes prevalence by 6-17%.⁴⁴ If half of short trips were made by bicycle, the US would save approximately £2.5 billion (US\$3.8 billion) a year from avoidable premature deaths and reduced healthcare costs.⁴⁵

Strategies to create urban environments which ensure

that walking and cycling are the most direct, convenient and appealing options for urban transport include:

- **urban design** which prioritises the safety and access needs of pedestrians and cyclists, with dedicated bicycle networks; clear signage with directions, distances and times; and adequate parking for bicycles;
- **vehicle restriction** by reducing car access in cities, implementing road pricing schemes, and limiting car speeds; and
- **investment and improvement in public transport** to facilitate urban access, increase walking and decrease GHG emissions.⁴⁶

Urban planning and design

Integrating physical activity into everyday life is a crucial to preventing obesity. However, the design of many cities is a barrier to physical activity because of, for example, impractical distances to walk or cycle between employment and residential areas. Implementing ‘active design’ that promotes physical activity into our communities will cut carbon emissions and support healthy physical and social living.⁴⁷

Strategies to achieve ‘active design’ include:

- **mixed land use** which locates housing, retail, employment areas and open green space close together, ensuring people have access to shops, leisure facilities and public spaces within walking distance reduces need for motor transport and increases physical activity;
- **green spaces** with local access to parks and green space for leisure to provide crucial sites for exercise and serve important environmental functions;
- **incorporating ‘active design’ into buildings** to integrate physical activity into people’s daily routines, for example using stairs instead of lifts, and reduce energy consumption;⁴⁸ and
- **health and sustainability assessment of buildings**, such as BREEAM and LEED ratings which measure a building’s environmental performance and often also incorporate health concerns.⁴⁹

⁴² Edward W Maibach et al., ‘Reframing Climate Change as a Public Health Issue: An Exploratory Study of Public Reactions’, *BMC Public Health*, 10: 299 (2010).

⁴³ Department of Health 2004, *At Least Five a Week. Evidence on the Impact of Physical Activity and its Relationship to Health*, Department of Health, available from http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_4080981.pdf (accessed 15 February 2012).

⁴⁴ James Woodcock et al., ‘Health and Climate Change 2 – Public Health Benefits of Strategies to Reduce Greenhouse-Gas Emissions: Urban Land Transport’, *The Lancet*, Vol 374 (December 2009).

⁴⁵ Maggie L Grabow et al., ‘Air quality and exercise related health benefits from reduced car travel in the midwestern united states’, *Environmental Health Perspectives*, 120, 1 (January 2012).

⁴⁶ James Woodcock et al., ‘Health and Climate Change 2 – Public Health Benefits of Strategies to Reduce Greenhouse-Gas Emissions: Urban Land Transport’, *The Lancet*, Vol 374 (December 2009).

⁴⁷ Institute of Medicine of the National Academies ‘Accelerating Progress in Obesity Prevention: Solving the Weight of the Nation’, May 2012.

⁴⁸ City of New York, *Active Design Guidelines: Promoting Physical Activity and Health in Design* (2010).

⁴⁹ BREEAM is an environmental assessment method and rating system for buildings first launched in 1990; LEED is a suite of rating systems for the design, construction and operation of high performance green buildings, homes and neighbourhoods launched in 1989.

FOOD POLICIES

The global food system (GFS) needs to be reformed to support an increasing population with a diet low in animal products and processed foods, and high in locally-produced fruit and vegetables.⁵⁰ The aim of the GFS must be to deliver sustainable diets, which deliver food security, support healthy lives, and have low environmental impacts.⁵¹

The following strategies have been shown to change consumption patterns:

- **nutritional information** through dietary guidelines and awareness campaigns to educate the public on the health and environmental threats of a diet high in animal produce;
- **food labelling** in clear and accurate formats – such as the ‘traffic light’ system – have been shown to be cost-effective ways of promoting health and reducing the risk of obesity;⁵² and
- **market interventions** including financial measures to restrict unhealthy choices can be used in conjunction with other policies, as shown in countries such as France, Denmark, Finland and Peru. However, taxation alone is not enough to change consumption habits and may have a disproportionate impact on poorer and ‘at risk’ groups.

Sustainable agriculture can provide food security in an efficient, environmentally sound and socially responsible way.⁵³ Investing in sustainable agriculture in low-income countries will provide access to food, and a potential source of income for poor and vulnerable people.⁵⁴

Strategies include:

- **Localising the food system**, to support small-scale and sustainable agriculture. A localised and decentralised food system will reduce food transport miles, fossil fuel consumption, and ensure access to nutritional foods. Prioritising local and small-scale food production will also protect indigenous communities, support a ‘green’ economy and strengthen food security.⁵⁵
- **Urban agriculture**, which produces food within or near city centres through initiatives such as urban farms and gardens, is a key strategy for localising the food system and decreasing GHG emissions from transport and storage.⁵⁶ Urban agriculture decreases reliance on highly-processed foods and ensures that healthy and sustainable food products, particularly fruit and vegetables, are accessible and attractive choices in cities.

⁵⁰ UN A/HRC/19/59, Report submitted by the UN Special Rapporteur on the Right to Food, Olivier de Schutter, 26 December 2011.

⁵¹ Ilona Kickbusch on behalf of Health Promotion Switzerland, *White Paper: The Food System* (July 2010).

⁵² Sacks G et al., ‘Traffic Light Nutrition Labelling and Junk Food Tax: A Modelled Comparison of Cost-Effectiveness for Obesity Prevention’, *Int J Obes*, 35 (7), July 2011.

⁵³ Sustainable Development Innovation Brief Issue 7, May 2009. The contribution of sustainable agriculture and land management to sustainable development. New York: UNDESADSD.

⁵⁴ UN A/HRC/19/59, Report Submitted by the UN Special Rapporteur on the Right to Food, Olivier de Schutter, 26 December 2011.

⁵⁵ Declaration of the 64th Annual UN DPI/NGO Conference Chair’s Text, ‘Sustainable Societies: Responsive Citizens’, Bonn, Germany, 3-5 September 2011; Ilona Kickbusch on behalf of Health Promotion Switzerland, *White Paper: The Food System* (July 2010).

⁵⁶ RUAF Foundation and START, ‘Urban Agriculture, Climate Change and Food Security: Responses in Northern and Southern Cities’, available online at http://resilient-cities.iclel.org/fileadmin/sites/resilient-cities/files/Resilient_Cities_2011/Presentations/A4_Dubbeling.pdf



5. CONCLUSION

The global challenges of type 2 diabetes and climate change threaten the health and wellbeing of individuals and undermine the environmental and economic sustainability of all countries. Concerted action and investment to curb type 2 diabetes and climate change makes economic sense and is urgently required to protect current and future generations.

There are no quick solutions for these complex challenges as they require fundamental shifts in the way we live and our approach to development, and demand a long-term view. However the under-explored links between type 2 diabetes and climate change that this report highlights have important implications for policy makers, opinion formers, businesses, and academics.

As a result, we are calling on governments, companies and other organisations to come together to take the following actions to combat diabetes and climate change:

- **Create transport policies** designed to reduce carbon emissions, increase active travel (distances walked and cycled) and prioritise pedestrians and cyclists – to increase physical activity and address type 2 diabetes.
- **Introduce urban design** which integrates ‘active design’ into streets and workplaces to increase physical activity, reduce carbon emissions and result in environmental benefits.
- **Ensure the global food system** delivers sustainable diets, which increase fruit and vegetable consumption and slow the rapid growth in the consumption of red meat and dairy products to reduce the risk of diabetes and reduce carbon emissions.
- **Strengthen integrated prevention and management of NCDs** to reduce the complications from poor diabetes care and the need for treatment and medication, and the extra human, environmental and financial impact these create.



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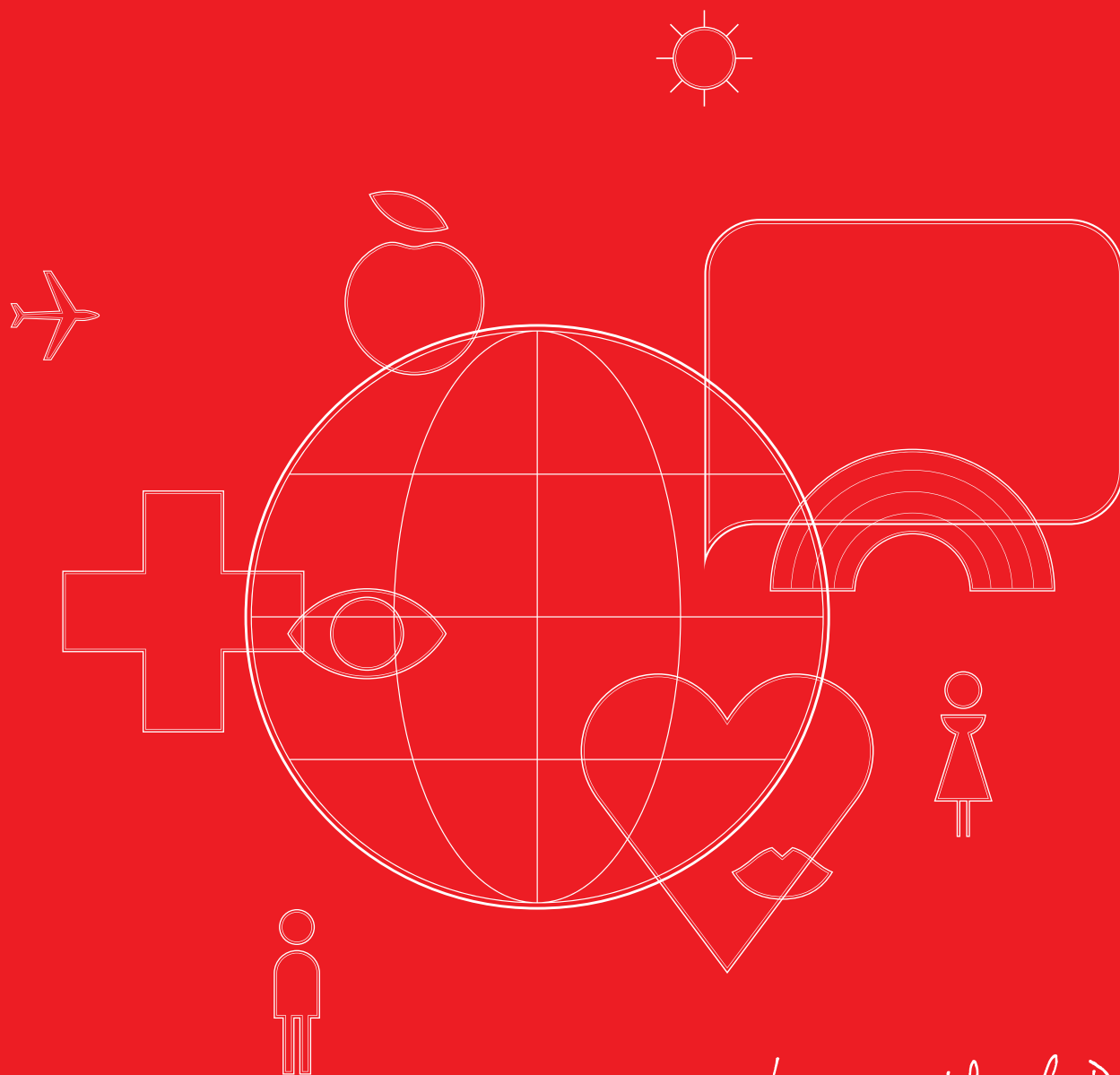
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